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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,777	11/13/2003	Shigeru Nakagawa	089992-000000US	8760

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EXAMINER
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DIACOU, ARI M

ART UNIT	PAPER NUMBER
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3663

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/713,777	<b>Applicant(s)</b> NAKAGAWA ET AL.	
	<b>Examiner</b> ARI M. DIACOU	<b>Art Unit</b> 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4-7,12-14 and 18-29 is/are pending in the application.
- 4a) Of the above claim(s) 22-24 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-7,12-14 and 25-29 is/are allowed.
- 6) ☒ Claim(s) 1 and 18-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

1. In the remarks filed 11-5-2008, applicant argued the following:
  - A. On page 8, that “The examiner cited Zah col. 2, lines 25-35 as teaching that ‘the insertion loss of the modulators is 3dB or more.’ August 6, 2008 office action, page 6, last paragraph. Applicants respectfully submit that this is a misapplication of the reference. The cited section of Zah states...”
  - B. On page 9, that the reference fails to teach the limitations of the claims added in the latest amendment.
2. Argument A is unconvincing, Examiner is unclear how the cite portion of Zah is contrary to the interpretation of Zah presented by the Examiner, and applicant fails to elaborate.
3. Argument B is unconvincing, the added limitations to claim 1 claim that the current controller can control an optical attenuation of the optical amplifying unit. This presents a 112P2 problem which is elaborated below. Since the scope of the claim is now in question, a comparasion of the scopes of Zah and the applicant's claims cannot be reliably made.

### ***Allowable Subject Matter***

4. Claims 4-7, 12-14 and 25-29 are allowed.
5. Claims 18-21 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the

limitations of the base claim and any intervening claims. Claim 18 contains the same allowable subject matter and similar enough context to claim 4.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1 and 18-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Regarding claim 1, the last line claims “to control an optical attenuation” of an optical amplification unit (OAU). This lacks antecedent basis because it is the first mention of the OAU being able to attenuate at all.
- Regarding claim 1, the last line claims “to control an optical attenuation” of an OAU. The 3<sup>rd</sup> thru 4<sup>th</sup> lines of the claim, claim that “the OAU amplifies in high gain”. The claim limitations are contradictory and must be reconciled by a claim amendment that claims the circumstances under which the amplifier and modulator amplify or attenuate, since it appears that applicant intends to claim that both components can amplify or attenuate based on unclear circumstances.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zah (USP No. 6434175) in view of Koch (USP No. 5394489).

- Regarding claim 1, Zah discloses An optical module arranged in an optical transmission path, comprising:

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- an optical amplifying unit [Fig. 8, #210] configured with a semiconductor [Col. 7, line 38] and disposed in series with and behind [Fig. 8, #210-410] an optical amplifying unit [Fig. 8, #210], wherein the optical amplifying unit amplifies in high gain light input from the optical transmission path [Fig. 8, horizontal axis of fig 8 to the right of #210 reads on this]; and
- an optical element [Fig. 8, #410] configured with a semiconductor [Modulator is disclosed as monolithically integrated with Phasar/DBR in Col. 7, line 4. Phasar/DBR contains an SOA (Col. 6, line 58). Therefore, the modulator is made of semiconductor.], wherein the optical element [Fig. 8, #410] includes an optical modulator [Col. 7, line 24], and propagates the light [Arrow at right of figure 8] amplified by the optical amplifying unit [Fig. 8, #210] to the optical transmission path [horizontal axis of figure 8]

but fails to disclose that:

- "[the SOA] is operative to produce gain of the optical amplifying element is sufficiently high that insertion loss of the optical module is completely compensated."
- The modulator is in series with and behind the optical amplifying unit
- The optical modulator is a directional optical modulator

Koch teaches a laser similar to that of Zah, but has additional disclosure of the optical modulator used, including that it can be before or after the optical amplifier [Col. 3, lines 40-46], and that it can be a directional optical modulator

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[Col. 2, line 50]. Zah teaches in [Col. 2, lines 11-24] that an SOA is optional, and in [Col. 2, lines 25-35] that the insertion loss of the modulators is 3dB or more, and that the single pass loss of the path is 1-2dB [Fig. 6-7] With the modification of Fig. 3 of Koch, it becomes possible to correct for this loss by changing the gain to compensate for the single pass loss, which is not possible if the modulator is lossy and in front of the SOA. Therefore, it would have been obvious to one skilled in the art (e.g. an optical engineer) at the time the invention was made, to choose an SOA with more than 3dB of gain, and placing it in front of a directional coupling modulator as taught by Koch, for the advantage of optimizing the power and SNR of the Phasar/DBR disclosed in Fig. 8 of Zah.

### Conclusion

12. The references made herein are done so for the convenience of the applicant. They are in no way intended to be limiting. The prior art should be considered in its entirety.

13. The prior art which is cited but not relied upon is considered pertinent to applicant's disclosure.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE **FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ari M. Diacou whose telephone number is (571) 272-5591. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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/A. M. D./

Examiner, Art Unit 3663

23-Jan-09

/Jack W. Keith/

Supervisory Patent Examiner, Art Unit 3663